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10/540,774	06/24/2005	Masahiro Karatsu	124479	6724
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MAYES, MELVIN C				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/540,774

**Applicant(s)**

KARATSU ET AL.

**Examiner**

Melvin C. Mayes

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☒ Claim(s) 16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SE-US)  
Paper No(s)/Mail Date 6/24/05, 11/2/05
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_

### **DETAILED ACTION**

#### ***Claim Rejections - 35 USC § 112***

(1)

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

(2)

Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 12 recites the limitation "said adhesive layers" in line 7. There is insufficient antecedent basis for this limitation in the claim.

Claim 12 recites the limitation "said green chip" in line 8. There is insufficient antecedent basis for this limitation in the claim.

#### ***Double Patenting***

(3)

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

(4)

Claims 1 and 13 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 6 of copending Application No. 10/540842. Although the conflicting claims are not identical, they are not patentably distinct from each other because:

U.S. 10/540842 claims a production method of an electronic device having an internal electrode, comprising the steps of:

- forming a release layer on a surface of a first supporting sheet;
- forming an electrode layer on a surface of said release layer;
- pressing said electrode layer against a surface of a green sheet to bond said electrode layer with the surface of said green sheet;
- stacking the green sheets bonded with said electrode layer to form a green chip; and
- firing said green chip;

wherein

- before pressing said electrode layer against the surface of said green sheet, an adhesive layer is formed on a surface of said electrode layer or a surface of said green sheet by a transfer

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method and wherein the thickness of the adhesive layer is 0.02 to 0.3  $\mu\text{m}$ , which encompasses Claims 1 and 13.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

(5)

Claims 1, 6 and 13-15 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 7-9 of copending Application No. 10/540842 in view of JP 2002-260954.

U.S. 10/540842 claims a production method of an electronic device having an internal electrode, comprising the steps of:

- forming a release layer on a surface of a first supporting sheet;
- forming an electrode layer on a surface of said release layer;
- pressing said electrode layer against a surface of a green sheet to bond said electrode layer with the surface of said green sheet;
- stacking the green sheets bonded with said electrode layer to form a green chip; and
- firing said green chip;

wherein

before pressing said electrode layer against the surface of said green sheet, an adhesive layer is formed on a surface of said electrode layer or a surface of said green sheet by a transfer method,

wherein said adhesive layer is formed on a surface of a third supporting sheet in a releasable way first and presses against a surface of said greensheet or a surface of said electrode layer so as to be bonded,

wherein said adhesive layer includes substantially the same binder resin as that included in said green sheet or

wherein said electrode layer is formed to be a predetermined pattern on a surface of said release layer, and a blank pattern layer having substantially the same thickness as that of said electrode layer is formed on a surface of the release layer not formed with the electrode layer and wherein said blank pattern layer includes substantially the same dielectrics as that composing said green sheet.

JP 2002-260954 teaches that in making a ceramic electronic component using an adhesive layer between the metal electrode layer and greensheet, the adhesive layer can have thickness of 0.1-10  $\mu\text{m}$  (Abstract and computer translation).

It would have been obvious to one of ordinary skill in the art to have modified the method of U.S. 10/540842 by providing the adhesive layer of thickness in the range of 0.1-10  $\mu\text{m}$ , as taught by JP 2002-260954, as thickness of adhesive provided to bond a metal electrode layer to a greensheet, thus overlapping the claimed range of 0.02-0.3  $\mu\text{m}$ .

This is a provisional obviousness-type double patenting rejection.

***Claim Rejections - 35 USC § 102***

(6)

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(7)

Claims 1, 3, 6 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 2002-26095.

JP 2002-260954 discloses a method of making a ceramic electronic component comprising:

- providing a metal electrode layer on a base;
- forming a glue line (adhesive layer) on the metal electrode layer;
- pressing the glue line against a greensheet to press the electrode layer against the greensheet;
- stacking greensheets and cutting to form a green chip; and
- firing the green chip, wherein the adhesive layer has a thickness of 0.1-10  $\mu\text{m}$  (overlapping the claimed range of 0.02-0.3  $\mu\text{m}$ ) (Abstract and computer translation).

Regarding Claim 3, the greensheet can have thickness of 0.5-30  $\mu\text{m}$ , thus overlapping the claimed range of 3  $\mu\text{m}$  or thinner, and the adhesive layer has a thickness of 0.1-10  $\mu\text{m}$ , thus encompassing having an adhesive layer of 1/5 the thickness of the greensheet or thinner.

Regarding Claim 6, the adhesive layer and the green sheet each include acrylic resin [0110].

Regarding Claim 7, the glue line can contain a plasticizer such as phthalic ester [0053].

(8)

Claims 1,3-5, 9 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 0 923 094.

EP 0 923 094 discloses a method of making a multilayer electronic element comprising:  
providing a metal conductor layer on the separation layer of a thermal transfer member;  
forming an adhesive layer on the conductor layer;  
thermally transferring the adhesive layer and conductor layer to a greensheet to form an electrode layer on the greensheet (thus pressing an electrode layer against the greensheet);  
stacking greensheets and cutting to form a green chip; and  
firing the green chip, wherein the adhesive layer has a thickness of 0.1-1.5  $\mu\text{m}$  (overlapping the claimed range of 0.02-0.3  $\mu\text{m}$ ) (pgs. 4-8).

Regarding Claim 3, the greensheet can have thickness of 3  $\mu\text{m}$ , and the adhesive layer has a thickness of 0.1-1.5  $\mu\text{m}$ , thus encompassing having an adhesive layer of 1/5 the thickness of the greensheet or thinner.

Regarding Claim 4, the greensheet can contain barium titanate particles of average particle size of 0.1  $\mu\text{m}$ , thus within the claimed range of 0.4  $\mu\text{m}$  or smaller.

Regarding Claim 5, the greensheet can include butyral resin.

Regarding Claim 9, the adhesive layer can contain dielectric particles to correspond to the thickness of the adhesive layer, the adhesive layer can have thickness of 0.1  $\mu\text{m}$  and the

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greensheet can contain dielectric particles of average particle diameter of 0.1  $\mu\text{m}$ , thus dielectric particles in the adhesive layer of average particle diameter equivalent to that of the particles in the greensheet.

Regarding Claim 10, the volume ratio of dielectric particles in the adhesive is 0.45 or lower, thus lower than the weight based ratio of dielectric particles in the greensheet.

(9)

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by JP 2002-84056.

JP 2002-84056 discloses a method of making a ceramic electronic component comprising:

providing a metal foil electrode layer on a carrier film;

forming an oxide film (adhesive layer) on the metal electrode layer to increase bonding strength between the metal and ceramic;

transferring the electrode layer to a greensheet (thus pressing against a surface of a greensheet);

stacking greensheets to form a green chip; and

firing the green chip, wherein the oxide film adhesive layer has a thickness of 0.01-30  $\mu\text{m}$  (encompassing the claimed range of 0.02-0.3  $\mu\text{m}$ ) (Abstract and computer translation).

(10)

Claim 12 is rejected under 35 U.S.C. 102(b) as being anticipated by JP 2001-23853.

JP 2001-23853 discloses a method of making a multilayer electronic device comprising:

printing an internal electrode on greensheets (thus repeating processing or bonding an electrode layer with a greensheet) and laminating greensheets to form a laminating block;

stacking laminating blocks via adhesive layers and cutting to form a green chip; and firing the green chip. JP '853 discloses an example where the adhesive layer has a thickness of 0.1  $\mu\text{m}$  (thus within the claimed thickness range) (computer translation).

(11)

Claims 1, 6, 7, 9, 10, 13 and 14 are rejected under 35 U.S.C. 102(a) as being anticipated by WO 03/036667.

WO 03/036667 discloses a method of making a multilayer electronic element comprising:

- providing a metal electrode layer on a second adhesive layer on a base film;
- forming an first adhesive layer on a greensheet;
- pressing the electrode layer against the first adhesive layer on the greensheet to bond the electrode layer to the greensheet;
- stacking greensheets and cutting to form a green chip; and
- firing the green chip, wherein the first adhesive layer formed on the greensheet has a thickness of more than 0  $\mu\text{m}$  and at most 1.0  $\mu\text{m}$  (encompassing the claimed thickness range of 0.02-0.3  $\mu\text{m}$ ) (corresponding document Nagai et al. 7,014,725, col. 2-4).

Regarding Claim 6, the first adhesive layer and greensheet each include polyvinyl butyral resin.

Regarding Claim 7, the first adhesive layer includes dibutyl phthalate (a phthalate ester).

Regarding Claims 9 and 10, the first adhesive layer includes dielectric particles included in the greensheet and has higher organic material content than the ceramic sheet (thus lower weight ratio of dielectric particles)

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Regarding Claims 13 and 14, the first adhesive layer is formed on a PET film and transferred to the greensheet.

Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

***Claim Rejections - 35 USC § 103***

(12)

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

(13)

Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0 923 094.

EP 0 923 094 disclose that the transfer from which the conductor layer and adhesive layer are transferred to a greensheet can be formed by sequentially laminating on the support member a separation layer, a conductor layer and an adhesive layer [0028].

Laminating an adhesive layer on the conductor layer by transfer from a supporting sheet would have been obvious to one of ordinary skill in the art as a means of laminating an adhesive layer. The use of a transfer method would have been obvious to one of ordinary skill in the art as an alternative method to coating for laminating an adhesive layer.

(14)

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2002-260954 in view of Tominaga et al. 5,089,071.

JP 2002-260954 discloses a method of making a ceramic electronic component comprising:

- providing a metal electrode layer on a base;
- forming a glue line (adhesive layer) on the metal electrode layer;
- pressing the glue line against a greensheet to press the electrode layer against the greensheet;

stacking greensheets and cutting to form a green chip; and

firing the green chip, wherein the adhesive layer has a thickness of 0.1-10  $\mu\text{m}$  (Abstract and computer translation). JP 2002-260954 discloses that the adhesive layer has a thickness of 0.1-10  $\mu\text{m}$  for greensheets of thickness of thickness of 0.5-30  $\mu\text{m}$  but does not disclose the average particle diameter of the dielectric particles in the greensheets.

Tominaga et al. teach that greensheets are made of ceramic powder having an average particle size of 0.1-10  $\mu\text{m}$  (col. 3, lines 25-29).

It would have been obvious to one of ordinary skill in the art to have been obvious to one of ordinary skill in the art to have modified the method of JP '954 by forming the greensheets of dielectric particles of average particle diameter in the range of 0.1-10  $\mu\text{m}$ , as taught by Tominaga et al., as average particle sizes used for forming greensheets. By providing the adhesive layer of thickness of 0.1-10  $\mu\text{m}$  and the dielectric particles of average particle diameter in the range of 0.1-10  $\mu\text{m}$ , an adhesive layer of thinner thickness than the average particle diameter is obviously formed depending on the choices of adhesive layer thickness and average particle diameter.

(15)

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2002-260954 as applied to claim 1, and further in view of Tominaga et al. 5,089,071.

JP '954 discloses that the greensheets can be formed of barium titanate particles [0035].

Tominaga et al. teach that greensheets are made of ceramic powder having an average particle size of 0.1-10  $\mu\text{m}$  (col. 3, lines 25-29).

It would have been obvious to one of ordinary skill in the art to have been obvious to one of ordinary skill in the art to have modified the method of JP '954 by forming the greensheets of

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barium titanate particles of average particle diameter in the range of 0.1-10  $\mu\text{m}$  (thus overlapping the claimed range of 0.4  $\mu\text{m}$  or smaller), as taught by Tominaga et al., as average particle sizes used for forming greensheets.

Regarding Claim 5, JP '954 discloses that the greensheet can be made from polyvinyl butyral or acrylic resin as the binder [0041].

(16)

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2002-260954 as applied to claim 6, and further in view of Buc 3,138,610.

JP 2002-260954 discloses that the adhesive can contain additives [0053].

Buc teaches that an additive that can be added to adhesive is imidazoline which is used as a surfactant whenever an agent having wetting, emulsifying, dispersing, foaming, frothing, etc properties are desired (col. 1, line 61-64, col. 4, lines 18-19).

It would have been obvious to one of ordinary skill in the art to have modified the method of JP '954 by providing imidazoline as an additive in the adhesive, as taught by Buc, as used in adhesive such as providing wetting, emulsifying, dispersing, foaming, frothing, etc properties when desired.

(17)

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over either of JP 2002-260954 or EP 0 923 094 as applied to claim 1, and further in view of JP 7-122457.

JP 7-122457 teaches that a method for making a multilayered ceramic electronic component wherein distortion, position deviation and disconnection of internal electrodes between greensheets are prevented by forming a plurality of laminated block bodies laminates

whose thickness is small compared to the component to be formed and laminating the block bodies such as by adhesive to form a green laminate for the component (Abstract and computer translation).

It would have been obvious to one of ordinary skill in the art to have modified the method of either JP '954 or EP '094 for making a ceramic electronic component by forming the stack of greensheets to be cut into a green chip by first forming a plurality of laminated block bodies then laminating the block bodies to form the laminate to be cut into a green chip, as taught by JP 7-122457, to prevent distortion, position deviation and disconnection of internal electrodes between greensheets.

***Allowable Subject Matter***

(18)

Claim 16 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

(19)

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melvin C. Mayes whose telephone number is 571-272-1234. The examiner can normally be reached on Mon-Fri 7:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Phillip C. Tucker can be reached on 571-272-1095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Melvin C. Mayes  
Primary Examiner  
Art Unit 1791

MCM  
February 13, 2008

/Melvin C. Mayes/  
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